

Remarks

Status of the Application

Prior to entry of this amendment, claims 1-14 were pending. The Office Action mailed February 10, 2011 (the "Office Action") rejected claims 1, 3, 4, 7, 9, 10, 13 and 14 under § 103(a) as being unpatentable over US Patent No. 5,905,781 to McHale ("McHale"), in view of US Patent No. 4,766,606 to Bardutz ("Bardutz"), and US Patent No. 6,118,766 to Akers ("Akers"), and rejected claims 2, 5, 6, 8, 11 and 12 under § 103(a) as being unpatentable over McHale, Akers and Bardutz as applied to claims 1 and 7 above, and in view of US Patent No. 6,084,881 to Fosmark ("Fosmark").

This paper neither amends, adds, nor cancels any claims. Hence, after entry of this paper, claims 1-14 will stand pending for examination. Claims 1, 7 and 13 are independent claims.

Rejections under 35 U.S.C. § 103

Claims 1, 3, 4, 7, 9, 10, 13 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over McHale, in view of Bardutz and Akers. These rejections are respectfully traversed, because the Office Action has not demonstrated that the cited combination either teaches or suggests each element of any rejected claim.

The Appeal Brief filed July 14, 2003 explained in detail why the combination of McHale, Bardutz, and Wu cannot create a prima facie case that any of claims 1, 7, and 13 are unpatentable. Specifically, the Appeal Brief argued that neither McHale, Bardutz, nor Wu discloses the regenerator recited by claims 1, 7, and 13. Apparently conceding the merit of this argument, the Office elected to reopen prosecution with the instant Office Action.

The Office Action essentially applies the same grounds of rejection from which the Applicants previously appealed. The only substantive difference is the substitution of the Akers reference for the Wu reference. Akers provides no more benefit than did Wu, however, and the current rejections, therefore, are equally infirm.

More specifically, the Office Action argues that the repeater disclosed by Akers (at Figs. 3-4 and column 4, lines 32-37) discloses the regenerator recited by claims 1, 7, and 13. We disagree.

The MICS card of Akers cannot be equated with the recited regenerator.

Taking claim 1, for example, the recited regenerator includes "a receiver for receiving XDSL signals transmitted on the twisted pair copper cable from either the central office or the end user." The regenerator also includes "a decoder for decoding the payload of a received XDSL signal into base data," "an encoder for repackaging and encoding the base data into a desired protocol format," and "a line driver for retransmitting the encoded signal onto the twisted pair copper cable for distribution to an original destination." Claim 1 further requires that, "the predetermined distance for the location of the regenerator corresponds to a point on the twisted pair cable where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold of minimum acceptable signal quality."

Akers meets none of these limitations. The Office correctly concedes that Akers discloses neither an encoder nor a decoder. The Office Action is incorrect, however, in equating the repeater of Akers with the recited regenerator, notwithstanding the missing encoder and decoder (which, as discussed below, the Office incorrectly argues are supplied by Bardutz). The purported "repeater" disclosed by Akers is a "Multiple ISDN Carrier System" ("MICS") card. Akers discloses that, with this "MICS card," "[t]he digital signal transported over the twisted calbe pair is demultiplexed and regenerated into two individual ISDN signals. The regenerated ISDN signals have the same signal quality and distance capability as the original ones, and they are sent to remote premises over the two ISDN cables 8 and 9." Akers, col. 4, lines 32-37. Thus, Akers teaches an ISDN demultiplexing system, for ISDN. Other than the bare mention of the term "regenerate," Akers' MICS card has nothing to do with the regenerator recited by claim 1.

For example, Akers neither discloses nor suggests that its MICS card might include a line driver for retransmitting a repackaged and encoded signal on a single twisted pair line. Instead, the MICS card simply demultiplexes a multiplex ISDN signal, and transmits the demultiplexed signals on two separate lines. This functionality falls far short of the recited regenerator (again, even apart from the decoder and encoder, which the Office Action admits are missing from Akers).

No reference discloses the signal to noise ratio threshold recited by claim 1.

Moreover, the regenerator recited by claim 1 has a predetermined location, which "corresponds to a point on the twisted pair cable where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold of minimum acceptable signal quality." Nothing in the

disclosure of Akers (or either of the other references) even suggests such a feature. Instead, Akers discloses distance limitations that are based on either "the MICS system's ability to transmit the powering voltage" (with has nothing to do with either signal or noise, let alone a signal to noise ratio) or "the signal processing ability of the digital encoding chip." Akers, col. 4, lines 5-8. Neither of these limiting factors either teaches or suggests predetermining a location based on a SNR threshold. Like the Wu reference before it, Akers teaches, at most, positioning of a repeater at the point of absolute failure of the system to operate at a greater distance.

Nor can the Office rely on Bardutz for this functionality. As noted in the Appeal Brief, Bardutz discloses locating repeaters based on two criteria: locations of loading coils, and where absolute signal loss meets a specified threshold. Neither of these criteria teach or suggest use of a threshold SNR as a criteria.

Bardutz does not teach or suggest the recited encoder and decoder.

With regard to the encoder and decoder, the Office Action posits,

Bardutz discloses (Col 2, lines 45 to col. 4, lines 14) a repeater "regenerator" (Fig 1, Ref Rep 1) which disposes between the central office (Fig 1, Ref office terminal), includes a receiver for receiving a signal (col. 2, lines 51, coupling means), a decoder (col. 2, lines 55-60, data recovery means) for decoding the payload of a received signal into a base data, an encoder (Col. 2, lines 60-65) for encoding and repackaging the base data into a desired protocol format and a line driver (Col. 2, lines 52-53, the regenerated signals is recoupled to the line) for retransmitting the encoded signals to the end user wherein the repeater is disposed at a predetermined distance where the SNR of the signal is reached to a threshold of minimum acceptable signal quality (it is implicitly). [Office Action at 4-5]

As noted in the Appeal Brief, this argument (which is identical to the argument in the appealed rejection) appears to misunderstand the disclosure of Bardutz. As detailed in pp. 8-9 of the Appeal Brief (which are incorporated herein by reference), Bardutz discloses a repeater within a system for multiplexing voice channels. This repeater operates on base band data and employs time division multiplexing to interleave the voice channels. In contrast, as explained in the Appeal Brief, XDSL systems employ frequency division multiplexing.

Nor does Bardutz disclose the recited repackaging functionality (or, for that matter, even any packaging functionality), which would be unnecessary in Bardutz' TDM system. As noted in the Appeal Brief, however, the Office's own construction of the references would require

Bardutz to perform repackaging, so identifying this deficiency does not constitute attacking references individually.

Thus, Bardutz' repeater cannot function as either the regenerator of claim 1 or as the decoder/encoder within that regenerator. In fact, the use of such a repeater, without the encoder and decoder recited by claim 1, would render the XDSL signals of claim 1 unusable.

There is no reasonable expectation of success in the offered combination.

For reasons largely similar to those discussed in the Appeal Brief, the combination of McHale, Bardutz, and Akers has no reasonable expectation of success. Essentially, the Office proposes inserting the repeater of Bardutz (and, somehow, the repeater of Akers) into the XDSL system disclosed by McHale. Since Bardutz's repeater operates on base band, time division multiplexed signals, and not modulated XDSL signals, the resulting combination will not produce Appellants' invention. Further, this combination will render McHale's system totally inoperative, since Bardutz's repeater will block any XDSL signal sent to it.

Accordingly, because McHale, Bardutz, and Akers collectively fail to teach or suggest each element of claim 1, and because there would be no reasonable expectation of success in the proposed combination (even assuming the combination did teach or suggest each element of claim 1), the combination of those references cannot establish a prima facie case that claim 1 is obvious under § 103(a), and claim 1 is allowable over those references.

Claims 7 and 13 are allowable over the same combination for at least similar reasons. Claims 3, 4, 9, 10 and 14 are allowable at least by virtue of their dependence from either claim 1, claim 7, or claim 13. Claims 2, 5, 6, 8, 11 and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over McHale, Akers and Bardutz, in view of Fosmark. Because Fosmark does not remedy the failings of the McHale-Akers-Bardutz combination with regard to independent claims 1, 7, and 13. Accordingly, claims 1 and 7, and claims 2, 5, 6, 8, 11 and 12, which depend therefrom, are allowable over the combination of McHale, Akers Bardutz, and Fosmark.

Conclusion

Applicant believes that the pending claims are in condition for allowance. If it would be helpful to obtain favorable consideration of this case, the Examiner is encouraged to call and discuss this case with the undersigned.

This paper constitutes a request for any needed extension of time and an authorization to charge all fees therefore to deposit account No. 19-5117, if not otherwise specifically requested. The undersigned hereby authorizes the charge of any fees created by the filing of this document or any deficiency of fees submitted herewith to be charged to deposit account No. 19-5117.

Respectfully submitted,

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/Chad E. King/
Chad E. King, #44,187
Swanson & Bratschun, L.L.C.
8210 Southpark Terrace
Littleton, CO 80120
Telephone: (303) 268-0066
Facsimile: (303) 268-0065